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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/747,923	12/29/2003	Jeffrey Dean Lindsay	18587	7066
23556	7590	11/13/2006	EXAMINER	
KIMBERLY-CLARK WORLDWIDE, INC. 401 NORTH LAKE STREET NEENAH, WI 54956			HILL, LAURA C	
			ART UNIT	PAPER NUMBER
			3761	

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



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APPLICATION NO / CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
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EXAMINER
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ART UNIT	PAPER
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20061026

DATE MAILED:

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**Commissioner for Patents**

## Office Action Summary

Application No.

10/747,923

Applicant(s)

LINDSAY ET AL

Examiner

Laura C. Hill

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3761

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-68 is/are pending in the application.
- 4a) Of the above claim(s) 52-68 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments filed 21 August 2006 have been fully considered but they are not persuasive.

1. In response to Applicant's arguments that Full teaches a hard and rigid substrate surface rather than a flexible substrate as amended (see Remarks pages 17-22), Examiner notes that Full discloses an embodiment wherein substrate 100 comprises nitride and oxide layers 102, 104 respectively that possess a stress difference between the layers that cause the structure *to curl from the plane* defined by substrate 100 (page 13, lines 3-11, figures 5B and 5C) and thus Full discloses a "flexible" substrate. It is noted that the term "flexible" is given its broadest reasonable interpretation consistent with the specification and ordinary meaning of possessing the ability to bend or change dimension freely.

2. In response to Applicant's arguments that there is no motivation or suggestion to modify Full with Rosch (see Remarks pages 18-19), Examiner would like to reiterate that the motivation comes within ordinary skill in the art to provide better attachment means since both references as discussed on page 12 of the Office action dated 17 April 2006. Furthermore, it is noted that Rosch is relied upon for teaching a disposable absorbent article in combination with the nanofabricated fastener (see pages 11-12 of the 17 April 2006 action). It has been held that the test for obviousness is not whether the features of one reference may be bodily incorporated into the other to produce the

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claimed subject matter but simply what the combination of references makes obvious to one of ordinary skill in the pertinent art. *In re Bozek*, 163 USPQ 545 (CCPA 1969).

3. In response to Applicant's arguments that there is no motivation or suggestion to modify Full with Akeno (see Remarks pages 19-20), Examiner would like to reiterate that the motivation comes within ordinary skill in the art to provide improved surface characteristics since it is known that surface characteristics are improved with a layer of coating as taught by Akeno (see page 12 of the 17 April 2006 action). Furthermore, it is noted that Akeno is relied upon for the titanium dioxide coating teaching rather than teaching to dispose the hairs onto a flexible substrate as stated on page 20 Remarks.

4. In response to Applicant's arguments that there is no motivation or suggestion to modify Full with Akeno and Magee (see pages 20-21), Examiner would like to reiterate that the motivation comes within ordinary skill in the art to provide elastics to a wearable article for improved fit as supported by Magee (see pages 12-13 of the 17 April 2006 action). Furthermore, it is noted that Magee is relied upon for only teaching elastics rather than teaching to dispose the hairs onto a flexible substrate as stated on page 21 Remarks.

5. In response to Applicant's arguments that there is no motivation or suggestion to modify Full with Akeno, Cronkite, and Robertson (see pages 21-22), Examiner would like to reiterate that the motivation comes within ordinary skill in the art to provide a removable cover over a fastener as supported by Cronkite and Robertson (see page 13 of the 17 April 2006 action). Furthermore, it is noted that the Cronkite and Robertson

references are relied upon for only teaching elastics rather than teaching to dispose the hairs onto a flexible substrate as stated on page 22 Remarks.

***Election/Restrictions***

6. This application contains claims 52-62 drawn to an invention nonelected with traverse in Paper No. 20060407. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

In response to Applicant's arguments that Group I and Group II are not separate and distinct inventions (see Remarks pages 13-14), Examiner maintains the combination/subcombination rationale of the 17 April 2006 Office action (see pages 2-3). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the disposable absorbent article does not require nanofabricated attachment means. Applicant has argued that the restriction requirement between I and II as being none persuasive because a search of the inventions can be done without serious burden to the Examiner. This is not found persuasive because of the reasons set forth in the Election/Restriction requirement of the previous Office Action, wherein the different status and different classification of group of inventions have been identified. Applicant's traversal is also not found persuasive because the consideration of undue burden is one that must be made by the Examiner. Applicants' arguments that the search of one invention must necessarily result in a search of the other one has been considered, but is not persuasive insofar as the searches are not co-extensive and an additional search would be

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necessary/required for the combination of inventions. Contrary to Applicant's assertions (see Remarks page 13), the same classification groups I and II does not preclude the burden of performing separate and additional searches. Furthermore, it is noted that claims 52, 60 and 63 have not been examined on the merits and the listing of these claims under the 35 USC 112 rejection section was made in error in the previous action and herein removed. *The restriction is made final.*

#### ***Drawings***

7. All objections to the drawings have been **removed** in view of Applicant's amendments filed 25 September 2006.

#### ***Specification***

8. In view of Applicant's amendments, the title has been changed to:  
Nanofabricated Gecko-Like Fasteners with Adhesive Hairs for Disposable Absorbent Articles.

#### ***Claim Rejections - 35 USC § 112***

9. All rejections under 35 USC 112 have been removed in view of Applicant's remarks (see pages 14-16)

#### ***Claim Language Interpretation***

10. The previous interpretation of the term 'gecko-like fastener' as recited in claim 5 is maintained. The definition of "gecko-like adhesive" was utilized for "gecko-like fastener" since "a section of gecko-like adhesive material 30 adapted for use as a fastener in an absorbent article" (see instant specification page 6, lines 11-18) and since there was no other definition for the term "gecko-like fastener". Moreover, Examiner

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maintains that the one of ordinary skill in the art would recognize that the "gecko-like fastener" could include a conventional hook and loop mechanical fastener since Applicant discloses the adhesive material may be a replacement for a hook and loop material or "the absorbent article may comprise a combination of the adhesive material 30 as well as other well known adhesive or *mechanical fastener*" (see specification page 8, lines 32-36 and page 22, lines 20-35). So long as the adhesive material is used as an attachment means for closing the absorbent article around a wearer, for joining the absorbent article to another article such as clothing or as a body adhesive (see instant specification page 11, lines 30-35), then the "gecko-like fastener" may or may not include a mechanical fastener like a hook and loop.

**11.** The term "flexible substrate" has been given its broadest reasonable interpretation consistent with the specification and ordinary meaning of a substrate possessing the ability to bend or change dimension freely.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

**12.** Claims 1-29, 40-42, 44-46, 49-51 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Full et al. (WO 01/49776A3; herein 'Full') in view of Akeno et al. (US 6,127,018; herein 'Akeno'). Regarding claims 1, 40-42, 50-51 and 69 Full discloses a fastener for clothes (page 1, lines 14-16 and page 16, lines 4-13) comprising nanofabricated attachment means (page 15, lines 1-2) comprising nanotube spatulae/adhesive hairs 136 (page 13, lines 29-30) disposed randomly and uniformly



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along substrate 130 to adhesively engage an opposing surface (figures 7, 9 and 10D) comprising a polystyrene surface (page 14, lines 16-18). Full further discloses an embodiment wherein substrate 100 comprises nitride and oxide layers 102, 104 respectively that possess a stress difference between the layers that cause the structure *to curl from the plane* defined by substrate 100 (page 13, lines 3-11, figures 5B and 5C) and thus Full discloses a "flexible" substrate. Full *does not expressly disclose* a disposable absorbent article. Akeno discloses a skid-proof engaging element 2 molded on a front surface of a substrate sheet 1 suitable for use in a disposable absorbent article such as a diaper in which sloping heads 23 project each from necks 22 (column 3, lines 25-28 and column 4, lines 5-16 and figures 2-4). One would be motivated to modify the fastener of Full with the fastener on the disposable absorbent article of Akeno for a skid-proof element since both references disclose fasteners on wearing articles. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the fastener, thus providing a fastener on a disposable absorbent article.

Regarding claim 2 Full further inherently discloses an attachment means with a packing density range claimed. The discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not expressly disclose not render the old composition patentably new to the discoverer. *Atlas Powder Co. v. Ireco Inc.*, 190F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is

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inherently present in the prior art does not expressly disclose not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). Alternatively, Full does not expressly disclose the packing density values. Packing density is a result-effective variable since it is well known that it is a result of the number of hairs per total surface area. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Full/Akeno with the aforementioned packing density values, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch and Slaney*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 3, 5, 7-8, 13 Full inherently discloses an average diameter value and a height to diameter ratio in the ranges claimed. The discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not expressly disclose not render the old composition patentably new to the discoverer. *Atlas Powder Co. v. Ireco Inc.*, 190F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not expressly disclose not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

Alternatively, Full discloses the diameter of the shaft/hair is preferably 0.01-0.1 times the length/height of the shaft and thus the height-to diameter is 1/0.01-0.1 or in the range of 10-100 (page 4, lines 25-29). Full further discloses the height is 1-500 microns long (page 4, lines 25-26). Full *does not expressly disclose* the diameter value.

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Diameter is a result-effective variable since it is a result of the type of material used for the hairs. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Full/Akeno with the diameter values, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch and Slaney*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 4 Full further discloses each seta has 136,000 nanoNewton (page 6, lines 27-30) [Note that since 0.001 microNewton equals 1 nanoNewton, Full discloses each hair has a force of 136,000 nano-Newtons].

Regarding claims 6 Full further discloses terminating elements (figure 9).

Regarding claims 9-12 Full inherently discloses spacing values and ratios between the hairs. The discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not expressly disclose not render the old composition patentably new to the discoverer. *Atlas Powder Co. v. Ireco Inc.*, 190F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not expressly disclose not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

Alternatively, Full does not expressly disclose the spacing values and ratio in the ranges claimed. The spacing between hairs is a result-effective variable since it is a result of the number of hairs on the substrate. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Full/Akeno with the

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spacing values and ratios claimed, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch and Slaney*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 14-16 Full further discloses at least one of the hairs is perpendicular to the substrate plane and is axisymmetric (figure 10D).

Regarding claim 17 Full further discloses the end portion of the hairs is flattened (page 6, lines 1-2 and figure 1E).

Regarding claims 18-19 Full inherently discloses the ratio of the width to the thickness of the flattened end and the flattened end surface area covered. The discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not expressly disclose not render the old composition patentably new to the discoverer. *Atlas Powder Co. v. Ireco Inc.*, 190F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not expressly disclose not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

Alternatively, Full *does not expressly disclose* the ratio of the width to the thickness of the flattened end and the flattened end surface area covered values. The aforementioned ratios are result-effective variables since they are a result of the surface area of the flattened end and the entire hair. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Full/Akeno with the aforementioned values, since it has been held that discovering an optimum value of a

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result effective variable involves only routine skill in the art. *In re Boesch and Slaney*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 20-22 Full further discloses the hairs are hollow nanotubes 136 (page 13, lines 29-30 and page 14, lines 19-20).

Regarding claims 23 Full further discloses said hollow molecules are SiO<sub>x</sub> layers on silicone substrates (page 15, lines 9-10).

Regarding claims 24-27 Full further discloses substrate 100 has well/aperture 106 (page 13, lines 8-9, figure 5C) and is liquid impervious since it is a semiconductor (page 13, lines 3-4).

Regarding claims 28-29 Full further discloses nitride and oxide layers are deposited on substrate 100 (page 13, lines 4-5).

Regarding claims 44-46 and 49 Full further discloses the fastener comprises a three-dimensional topography characterized by a series of alternating peaks and valleys, wherein groups of hairs 178 are disposed on said valleys, and wherein there are substantially hair-free regions between groups of hair (figure 10D).

13. Claims 1 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Full et al. (WO 01/49776A3; herein 'Full') in view of Rosch et al. (US 4,585,450; herein 'Rosch'). Full *does not expressly disclose* a disposable absorbent article with the nano-fabricated fastener. **Rosch** discloses that in order to eliminate the need for pins or other mechanical fasteners to join the waist portions together, which would pose a danger to the infant, and so as to provide a complete garment that is ready for use without the need for additional fastening devices, disposable diapers have included pressure

sensitive-adhesive tabs as fastening means for securing the front and rear panels together about the waist of an infant (column 1, lines 25-33). One would be motivated to modify the fastener of Full with the fastener for use on disposable absorbent articles for improved attachment since both references disclose attachment means. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the fastener, thus providing a disposable absorbent article with fastener.

14. Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Full et al. (WO 01/49776A3; herein 'Full') in view of Akeno et al. (US 6,127,018; herein 'Akeno'), and further in view of Schutt (US 2001/0023568; herein 'Schutt'). Full discloses a coating as discussed above with respect to claims 27-29. Full *does not expressly disclose* the coating is a titanium dioxide treated with a UV absorbing material. **Schutt** discloses coating compositions such as a titanium dioxide treated with a UV absorbing material for a durable surface finish (page 5, paragraph 0088 and abstract). One would be motivated to modify the coating of Full/Akeno with the titanium dioxide UV-absorbing material of Schutt for improved surface characteristics since the references disclose surface coatings. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the coating, thus providing a titanium dioxide UV-absorbing coating.

15. Claims 33-39 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Full et al. (WO 01/49776A3; herein 'Full') in view of Akeno et al. (US 6,127,018; herein 'Akeno'), and further in view of Magee et al. (US 2003/0100880; herein 'Magee'). Full/Akeno *do not expressly disclose* elastic regions. **Magee** discloses a diaper 20 may

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also include such other features as are known in the art including leg cuffs, front and rear ear panels, waist cap features, elastics and the like to provide better fit, containment and aesthetic characteristics (page 3, paragraph 0039). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Full/Akeno with elastics.

16. Claims 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Full et al. (WO 01/49776A3; herein 'Full') in view of Akeno et al. (US 6,127,018; herein 'Akeno'), and further in view of Cronkite (US 4,299,223; herein 'Cronkite'), and further in view of Robertson et al. (US 5,279,604; herein 'Robertson'). Full/Akeno do not expressly disclose removable cover over the hairs for protection from contamination. It is well-known to those of ordinary skill in the art to employ a removable cover over a fastener to prevent contamination before use as supported by Cronkite and Robertson. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the fastening hairs of Full/Akeno, thus providing a removable cover.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura C. Hill whose telephone number is 571-272-7137. The examiner can normally be reached on Monday through Friday (hours vary).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tatyana Zalukaeva can be reached on 571-272-1115. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Laura C. Hill  
Examiner  
Art Unit 3761  
LCH



TATYANA ZALUKAEVA  
SUPERVISORY PRIMARY EXAMINER

